

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Reissue Patent Application of )  
 )  
U.S. Patent No. 5,327,577 to ) Group Art Unit: 2746  
 )  
Jan-Erik UDDENFELDT et al. )  
 )  
Serial No.: 08/938,832 ) Examiner: E. Urban  
 )  
Filed: September 26, 1997 )  
 )  
For: HANDOVER METHOD FOR )  
MOBILE RADIO SYSTEM )

7/9  
10/13/98

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**NOTICE REGARDING LITIGATION**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Pursuant to M.P.E.P. § 1442.04 and 37 C.F.R. § 1.56, please note that the above-identified patent is involved in litigation. Specifically, this patent is involved in litigation in the Northern District of Texas, Docket No. 96 cv 3373 and in the Northern District of California, Docket No. C96-2074. The enclosed documents highlight the defenses of which the undersigned is aware which have been raised in the former litigation and which are related to the validity of the patent. Other documents associated with alleged non-infringement are not included herewith, because the undersigned has been informed that these documents have been (retroactively) placed under seal by the Court. These documents, however, were submitted (apparently before being placed under seal) in a related reissue prosecution application, Serial No. 08/136,760 filed October 23, 1993 for

"Cellular Digital Mobile Radio System And Method Of Transmitting Information In A Digital Cellular Mobile Radio System" issued to Jan-Erik Uddenfeldt et al.

The Examiner is invited to review the documents in the related application. At this point, the undersigned is not aware of additional defenses having been raised in this litigation alleging any charges of fraud or inequitable conduct, or any other details and documents, other than those already submitted in an Information Disclosure Statement, associated with the litigation that could be considered "material to patentability" pursuant to 37 C.F.R. § 1.56.

No fees are believed to be due by submission of this document. If, however, fees are needed the Commissioner is hereby authorized to charge any such fees to Deposit Account No. 02-4800. This paper is submitted in triplicate.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: \_\_\_\_\_



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Date: September 30, 1998

**IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF TEXAS  
DALLAS DIVISION**

ERICSSON INC. and TELEFONAKTIEBOLAGET  
LM ERICSSON,

Plaintiffs,

v.

QUALCOMM PERSONAL ELECTRONICS,

Defendant.

No. 3-96CV3373-P

**QUALCOMM PERSONAL ELECTRONICS' SECOND SUPPLEMENTAL RESPONSE  
TO PLAINTIFFS' FIRST SET OF INTERROGATORIES**

Pursuant to Federal Rule of Civil Procedure 33 and in compliance with Magistrate Judge Kaplan's March 2, 1998 order, Defendant Qualcomm Personal Electronics ("QPE") provides these supplemental responses to the First Set of Interrogatories served by plaintiffs Ericsson Inc. and Telefonaktiebolaget LM Ericsson (collectively "Ericsson"). In supplementing its responses to these interrogatories, QPE incorporates by reference the General Objections it raised to these interrogatories in its initial responses dated May 14, 1997.

**INTERROGATORY NO. 1:**

For each of the Ericsson Patents in Suit which Qualcomm alleges in Paragraphs 10-14 of its Answer (Restated) that Qualcomm does not infringe, apply on an element-by-element and limitation-by-limitation basis, each Ericsson Claim against each Qualcomm IS-95 compliant product or process to indicate which claim elements or limitations Qualcomm concedes are found in the product or process and which claim elements or limitations are missing, and state each and every fact supporting that contention.

QPE incorporates by reference all of its responses to Interrogatory No. 4 and incorporates by reference its Second Supplemental response to Interrogatory No. 1. In light of those two responses, it is clear that Ericsson cannot assert a claim scope that reads on the QPE Accused Products unless entire claim elements are ignored, the prosecution history is ignored, and the validity of the claims is ignored. QPE will not engage in such speculation as it would be unduly burdensome to perform such speculation. Moreover, in light of the absence of entire claim elements in the QPE Accused Products, QPE cannot infringe the Ericsson patents-in-suit under the doctrine of equivalents since the doctrine of equivalents cannot operate to eliminate claim elements in their entirety. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 117 S. Ct. 1040, 1048-49, 1050 (1997). Furthermore, as detailed in the thousands of documents produced by QPE in this case (and the thousands of documents produced by Qualcomm in the Marshall litigation), QPE's CDMA technology performs substantially different functions in substantially different ways to achieve substantially different results compared to the processes and devices claimed in the Ericsson patents-in-suit. Accordingly, the QPE Accused Products cannot infringe under the doctrine of equivalents. See *Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1408 (Fed. Cir. 1996).

QPE will supplement its response to Interrogatory No. 2 as additional analyses are carried out and completed that demonstrate the absence of additional claim elements for the claims currently asserted by Ericsson.

#### INTERROGATORY NO. 3:

For each claim of each of the Ericsson Patents in Suit which Qualcomm contends is invalid under 35 U.S.C. §§ 101, 102, or 112, as pleaded in part by Qualcomm in Paragraph 15 of its Answer (Restated) and Paragraph 4 of Qualcomm's Amended Declaratory Judgment

Counterclaim, state each and every fact supporting the grounds for such pleadings and identify all prior art supporting these contentions.

**SECOND SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 3:**

In addition to QPE's General Objections, QPE objects to this interrogatory on the grounds that it is overbroad and unduly burdensome. Ericsson to date has identified only one claim of each patent in suit as allegedly infringed by QPE. Thus, this interrogatory needlessly requires QPE to address a large number of claims that Ericsson has not placed in issue. Moreover, the information sought by this interrogatory is premature. This is because, inter alia, the validity or invalidity of a patent claim or element of a claim depends upon the interpretation that is afforded such claim or claim element. Thus, the invalidity analyses sought are tentative and incomplete in that they do not have the benefit of the final claim interpretations by the Court or the benefit of Ericsson's alleged claim interpretations due to Ericsson's refusal to furnish such interpretations. Furthermore, Ericsson has failed to produce evidence of conception of the alleged inventions or evidence of diligence in reducing the alleged inventions to practice. Consequently, without such production, QPE cannot at present fix the dates which are relevant in determining the scope and content of the prior art—a necessary prerequisite for establishing invalidity under certain provisions of section 102. In addition, QPE's validity investigations are ongoing and QPE is continuing to receive and evaluate additional prior art that may be relevant to the invalidity or unenforceability of the patent claims in issue. Finally, QPE's ability to establish its best mode defenses under section 112 are dependent on Ericsson's compliance with orders compelling Ericsson to produce its CDMA and TDMA source code—orders that Ericsson is refusing to comply with while such orders are being appealed.

Subject to QPE's general and specific objections, and subject to QPE's reservation of the right to supplement and modify its responses as additional information and analysis is conducted, QPE will provide such information responsive to this interrogatory as has been tentatively determined to date, with respect to those claims which Ericsson has expressly identified in its responses to QPE's first set of interrogatories. Accordingly, QPE reserves the right to add additional invalidity arguments, whether based on prior art or based on the failure of the patents to comply with section 112, should Ericsson identify additional claims allegedly infringed by the QPE Accused Products. Based upon information currently available, QPE incorporates its prior responses and supplements its responses as follows:

**Patent 5,109,528 (Claim 4) and Patent 5,327,577 (Claim 7):**

Under a proper claim interpretation, the QPE Accused Products do not infringe the '528 or '577 patents. Indeed, as properly construed, the '528 and '577 claims do not read on the QPE Accused Products, the IS-95 standard, or any CDMA method or system, as discussed in QPE's responses to Interrogatory No. 1. Should the Court adopt QPE's claim interpretation, QPE need not go forward with its invalidity allegations.

QPE's invalidity counterclaims and defenses, like QPE's noninfringement defenses, necessarily depend on the scope of the claims. Depending upon the claim construction adopted by the Court, the claims will be either (1) not infringed, (2) invalid, or (3) both. In all likelihood, QPE will not be required to demonstrate that the claims are invalid if the Court has already held that QPE does not infringe. Thus, if the Court determines the proper scope of the claims before it addresses validity, the Court may not need to consider QPE's invalidity defenses.

As of the date of these responses, QPE and Qualcomm (in a parallel, first-filed action in Marshall, Texas) have asked Ericsson to explain its claim interpretation so that QPE and

Qualcomm may understand Ericsson's allegations, focus on the areas of disagreement, and refine and narrow the noninfringement and invalidity disputes. Unfortunately, Ericsson has refused to explain what its duplicative lawsuits are about, in spite Court orders compelling it do so in the Marshall litigation.

As a consequence, QPE must necessarily guess at Ericsson's claim interpretation in order to respond to this interrogatory. QPE therefore reiterates its general objection that it is unduly burdensome to require QPE to apply the prior art against a claim interpretation that Ericsson refuses to disclose. Notwithstanding the foregoing, QPE's invalidity defenses were plead in good faith and based upon prior art, which QPE has already disclosed to Ericsson and which would support an invalidity defense against apparent claim interpretations Ericsson might propose. QPE has already specifically identified the following prior art as supporting its invalidity defenses regarding claim 4 of the '528 patent and claim 7 of the '577 patent: U.S. Patent Nos. 4,596,042, 4,697,260, 4,718,081, 4,723,266, 4,737,978, 4,759,051 and 4,955,082, as well as Japanese Patent Abstract, Vol. 9, No. 169 (E-328), EPO Application No. 0274857, and two articles by Berhardt entitled "User Access in Portable Radio Systems" and "RF Performance of Macroscopic Diversity in Universal Digital Portable Radio Communications." Although QPE cannot provide a detailed analysis until Ericsson provides its claim construction, QPE believes that this prior art discloses systems that expressly or inherently practice the claims that Ericsson is now attempting to assert against QPE. In addition, QPE identifies the following prior art supporting invalidity defenses to the unknown, but apparently broad, claim construction that Ericsson may espouse: U.S. Patent Nos. 4,112,257, 4,698,839 and 4,856,048, and two articles by Nakajima et al. entitled "Advanced Mobile Communication Network Based on Signaling System No. 7."

This additional prior art discloses, either expressly or inherently, systems in which multiple base stations transmit to a single mobile station. Once Ericsson commits to a claim interpretation, QPE will supplement its analysis and will then provide a more detailed explanation of how Ericsson's interpretation would render the claims invalid in light of this prior art. In addition, once Ericsson commits to a claim interpretation, QPE may be able to identify additional prior art that invalidates the claims, at least as Ericsson construes them.

Finally, nothing in the specification or drawings supports Ericsson's apparent interpretation that the claims cover spread spectrum technology, much less code-division multiple access ("CDMA") technology. QPE has scrutinized the specification and drawings and is unable to find any disclosure whatsoever supporting Ericsson's apparent interpretation or mentioning CDMA systems and methods. Thus, to the extent that Ericsson is successful in convincing the Court that the claims should be interpreted as covering CDMA systems, the written description appears to be inadequate under section 112 since there is no written description of a method for practicing CDMA or spread spectrum technology. Furthermore, Ericsson's undisclosed, but apparently broad interpretation would render the claims invalid under section 112 for failure to claim what the applicant regards as his invention.

**Patent 5,088,108 (Claim 1)**

Under a proper claim interpretation, the QPE Accused Products do not infringe the '108 patent. Indeed, as properly construed, the '108 claims do not read on the QPE Accused Products, the IS-95 standard, or any CDMA method or system, as discussed in QPE's responses to Interrogatory No. 1. Should the Court adopt QPE's claim interpretation, QPE need not go forward with its invalidity allegations.



As of the date of these responses, QPE and Qualcomm (in a parallel, first-filed action in Marshall, Texas) have asked Ericsson to explain its claim interpretation so that QPE and Qualcomm may understand Ericsson's allegations, focus on the areas of disagreement, and refine and narrow the noninfringement and invalidity disputes. Unfortunately, Ericsson has refused to explain what its duplicative lawsuits are about, in spite Court orders compelling it do so in the Marshall litigation.

As a consequence, QPE must necessarily guess at Ericsson's claim interpretation in order to respond to this interrogatory. QPE therefore reiterates its general objection that it is unduly burdensome to require QPE to apply the prior art against a claim interpretation that Ericsson refuses to disclose. Notwithstanding the foregoing, QPE's invalidity defenses were plead in good faith and based upon prior art, which QPE has already disclosed to Ericsson and which would support an invalidity defense against apparent claim interpretations Ericsson might propose. QPE has already specifically identified the following prior art as supporting its invalidity defenses regarding claim 1 of the '108 patent: U.S. Patent Nos. 4,097,804, 4,255,814, 4,383,332, 4,516,267, 4,675,863, 4,696,051, 4,696,052, 4,718,109, 4,759,051, as well as EPO Application Nos. 40731, 72479, 72984, 274857, FRG Application No. B022425, and Articles by Raith, Heynisch, Stjernall, and Heft cited in QPE's supplemental responses. Although QPE cannot provide a detailed analysis until Ericsson provides its claim construction, QPE believes that this prior art discloses systems that expressly or inherently practice the claim that Ericsson is now attempting to assert against QPE. In addition, QPE identifies the following prior art supporting invalidity defenses to the unknown, but apparently broad, claim construction Ericsson may espouse: U.S. Patent Nos. 4,097,804, 4,383,332, 4,852,090, and 4,490,830.

This additional prior art discloses, either expressly or inherently, multipath signal reception and equalization in cellular systems. Once Ericsson commits to a claim interpretation, QPE will supplement its analysis and will then provide a more detailed explanation of how Ericsson's interpretation would render the asserted claim invalid in light of this prior art. In addition, once Ericsson commits to a claim interpretation, QPE may be able to identify additional prior art that invalidates the claim, at least as Ericsson construes it.

Finally, nothing in the specification or drawings supports Ericsson's apparent interpretation that the claims of the '108 patent cover spread spectrum technology, much less code-division multiple access ("CDMA") technology. QPE has scrutinized the specification and drawings and is unable to find any disclosure whatsoever supporting Ericsson's apparent interpretation or mentioning CDMA systems and methods. Thus, to the extent that Ericsson is successful in convincing the Court that the claims should be interpreted as covering CDMA systems, the written description of the '108 patent appears to be inadequate under section 112 since there is no written description of a method for practicing CDMA or spread spectrum technology. Furthermore, Ericsson's undisclosed, but apparently broad interpretation would render the claims invalid under section 112 for failure to claim what the applicant regards as his invention.

**Patent 5,148,485 (Claim 62)**

Under a proper claim interpretation, the QPE Accused Products do not infringe claim 62 of the '485 patent, as discussed in QPE's responses to Interrogatory No. 1. Should the Court adopt QPE's claim interpretation, QPE need not go forward with its invalidity allegations.

As of the date of these responses, QPE and Qualcomm (in a parallel, first-filed action in Marshall, Texas) have asked Ericsson to explain its claim interpretation so that QPE and

ERICSSON INC. and TELEFONAKTIEBOLAGET  
LM ERICSSON,

**v.**

**Defendant.**

No. 3-96CV3373-P

Pursuant to Federal Rule of Civil Procedure 33 and in compliance with Magistrate Judge Kaplan's March 2, 1998 order, Defendant Qualcomm Personal Electronics ("QPE") provides these supplemental responses to the First Set of Interrogatories served by plaintiffs Ericsson Inc. and Telefonaktiebolaget LM Ericsson (collectively "Ericsson"). In supplementing its responses to these interrogatories, QPE incorporates by reference the General Objections it raised to these interrogatories in its initial responses dated May 14, 1997.

For each of the Ericsson Patents in Suit which Qualcomm<sup>1</sup> alleges in Paragraphs 10-14 of its Answer (Restated) that QPE does not infringe, apply on an element-by-element and limitation-by-limitation basis, each Ericsson Claim against each QPE IS-95 compliant product or process to indicate which claim elements or limitations QPE concedes are found in the product

1.

**INTERROGATORY NO. 3:**

For each claim of each of the Ericsson Patents in Suit which QPE contends is invalid under 35 U.S.C. §§ 101, 102, or 112, as pleaded in part by QPE in Paragraph 15 of its Answer (Restated) and Paragraph 4 of QPE's Amended Declaratory Judgment Counterclaim, state each and every fact supporting the grounds for such pleadings and identify all prior art supporting these contentions.

**SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 3:**

In addition to QPE's General Objections, QPE objects to this interrogatory on the grounds that it is overbroad and unduly burdensome. Ericsson to date has identified only one claim of each patent in suit as allegedly infringed by QPE. Thus, this interrogatory needlessly requires QPE to address a large number of claims that Ericsson has not placed in issue. Moreover, the information sought by this interrogatory is premature. This is because, inter alia, the validity or invalidity of a patent claim or element of a claim depends upon the interpretation that is afforded such claim or claim element. Thus, the invalidity analyses sought are tentative and incomplete in that they do not have the benefit of the final claim interpretations by the Court or the benefit of Ericsson's alleged claim interpretations due to Ericsson's refusal to furnish such interpretations. Furthermore, Ericsson has failed to produce evidence of conception of the alleged inventions or evidence of diligence in reducing the alleged inventions to practice. Consequently, without such production, QPE cannot at present fix the dates that are relevant in determining the scope and content of the prior art—a necessary prerequisite for establishing invalidity under certain provisions of section 102. In addition, QPE's validity investigations are ongoing and QPE is continuing to receive and evaluate additional prior art that may be relevant to the invalidity or unenforceability of the patent claims in issue. Finally, QPE's ability to

establish its best mode defenses under section 112 are dependent on Ericsson's compliance with orders compelling Ericsson to produce its CDMA and TDMA source code—orders that Ericsson is refusing to comply with while such orders are being appealed.

Subject to QPE's general and specific objections, and subject to QPE's reservation of the right to supplement and modify its responses as additional information and analysis is conducted, QPE will provide such information responsive to this interrogatory as has been tentatively determined to date, with respect to those claims which Ericsson has expressly identified in its responses to QPE's first set of interrogatories. Accordingly, QPE reserves the right to add additional invalidity arguments, whether based on prior art or based on the failure of the patents to comply with section 112, should Ericsson identify additional claims allegedly infringed by the QPE Accused Products. Based upon information currently available, QPE incorporates its prior responses and supplements its responses as follows:

**Patent 5,109,528 (Claim 4) and Patent 5,327,577 (Claim 7):**

1. Under a proper claim interpretation, the QPE Accused Products do not infringe the '528 or '577 patents. QPE must necessarily guess at Ericsson's claim interpretation in order to respond to this interrogatory. As best as QPE can decipher Ericsson's claim construction, Ericsson is now claiming that these patents cover any "handoff" or "handover" in which multiple base stations transmit simultaneously to a single mobile station. Such a claim construction is erroneous, QPE believes, because it ignores the limitations set forth in QPE's response to Interrogatory No. 1. Moreover, as Ericsson is well aware, such a claim construction would render the claims invalid in light of the prior art—indeed, Ericsson has filed reissue applications for the patents because, Ericsson admits, they are invalid in light of the prior art.

2. QPE has already informed Ericsson of U.S. Patent No. 4,112,257, issued a decade before Ericsson supposedly "invented" the concept of simultaneous transmission during

handover. The '257 patent discusses a system in which, just prior to the transfer of communications, the voice channel in both directions is activated. Thus, for a period of time the same transmission is present from both base stations, yet this is the very method that Ericsson appears to claim.

3. Ericsson has also been made aware of U.S. Patent No. 4,698,839. The '839 patent discloses a system that uses a conventional conference circuit at the central office. According to the '839 patent, the conventional conference circuit allows voice information to be transferred between the other part and the mobile station through both cell sites. Thus, as the '839 patent states, continuity during handoff is maintained.

4. Ericsson is also already aware of U.S. Patent No. 4,856,048. The '048 patent discusses a handover system in which the radio channel is switched while maintaining a condition capable of communicating with a telephone through either the present radio speech channel or the new speech channel. Thus, the '048 patent states, the handover system has the advantage of limiting any interruption in communication during handover.

5. QPE has further notified Ericsson of two articles by Nakajima et al. entitled "Advanced Mobile Communication Network Based on Signaling System No. 7." These articles describe how the present and new wire speech paths are multiconnected before the radio speech path is changed. Thus, once the radio channel is changed, the mobile can converse using the new base station. The mobile switch permits the mobile to use not only the first base station but also the new base station at the same time.

6. QPE has not yet performed a detailed analysis of every single prior art reference, and is unable to determine which prior art references it will use until Ericsson identifies how it construes the claim. Indeed, Ericsson has forced QPE to conduct prior art searches based on

QPE's "best guess" of Ericsson's claim construction and infringement positions, and QPE will undoubtedly find it necessary to search for and analyze additional prior art once Ericsson provides its claim construction.

QPE has already specifically identified the following prior art as supporting its invalidity defenses regarding claim 4 of the '528 patent and claim 7 of the '577 patent: U.S. Patent Nos. 4,596,042, 4,697,260, 4,718,081, 4,723,266, 4,737,978, 4,759,051 and 4,955,082, as well as Japanese Patent Abstract, Vol. 9, No. 169 (E-328), EPO Application No. 0274857, and two articles by Berhardt entitled "User Access in Portable Radio Systems" and "RF Performance of Macroscopic Diversity in Universal Digital Portable Radio Communications." Although QPE cannot provide a detailed analysis until Ericsson provides its claim construction, QPE believes that this prior art discloses systems that expressly or inherently practice the claims that Ericsson is now attempting to assert against QPE

As of the date of these responses, QPE and Qualcomm (in a parallel, first-filed action in Marshall, Texas) have asked Ericsson to explain its claim interpretation so that QPE and Qualcomm may understand Ericsson's allegations, focus on the areas of disagreement, and refine and narrow the noninfringement and invalidity disputes. Unfortunately, Ericsson has refused to explain what its duplicative lawsuits are about, in spite Court orders compelling it do so in the Marshall litigation.

QPE will supplement its analysis and will then provide a more detailed explanation of how Ericsson's interpretation would render the asserted claim invalid in light of this prior art once Ericsson provides a claim interpretation. In addition, once Ericsson commits to a claim interpretation, QPE may be able to identify additional prior art that invalidates the claim, at least as Ericsson construes it.

7. Nothing in the specification or drawings supports Ericsson's apparent interpretation that the claims of the '528 and '577 patents cover spread spectrum technology, much less code-division multiple access ("CDMA") technology. QPE has scrutinized the specification and drawings and is unable to find any disclosure whatsoever supporting Ericsson's apparent interpretation or mentioning CDMA systems and methods. Thus, to the extent that Ericsson is successful in convincing the Court that the claims should be interpreted as covering CDMA systems, the written description appears to be inadequate under section 112 since there is no written description of a method for practicing CDMA or spread spectrum technology. Furthermore, Ericsson's undisclosed, but apparently broad interpretation would render the claims invalid under section 112 for failure to claim what the applicant regards as his invention, as the scope that Ericsson apparently now espouses is impossibly broad. QPE will be able to further supplement this portion of the interrogatory once Ericsson provides discovery. Unfortunately, Ericsson has refused to allow QPE to take depositions of its inventors, and has unilaterally refused to participate in any further disclosure of any information that Ericsson believes to be "Confidential" in either this case or the Marshall case.



**Patent 5,088,108 (Claim 1)**

1. Under a proper claim interpretation, the QPE Accused Products do not infringe the '108 patent. Indeed, as properly construed, the '108 claims do not read on the QPE Accused Products, the IS-95 standard, or any CDMA method or system, as discussed in QPE's responses to Interrogatory No. 1. Should the Court adopt QPE's claim interpretation, QPE need not go forward with its invalidity allegations.

2. QPE's invalidity analysis is tentative because it must guess at Ericsson's proposed claim construction. Ericsson has made several statements to the effect that it believes that the only limitation of the claim involves a relationship between a modulation parameter—which Ericsson calls the “modulation time interval”—and the distance between base station transmitters in the system. Indeed, Ericsson has attempted to ignore numerous claim limitations in its effort to read this claim on IS-95A compliant systems, as discussed in detail in QPE's response to Interrogatory No. 1. Ericsson has refused to provide its infringement analysis, but has argued, in a brief filed on April 24, 1998 with Judge Solis, that claim does not even require the use of base stations at all—an argument that flies in the face of everything in the claim, specification, and prosecution history. Ericsson does not explain how the patent discusses *anything* that does not require the use of two base stations.

3. During the '108 prosecution, Ericsson persuaded the Examiner to draw a section 112 rejection by arguing:

Applicant respectfully submits that the unique features of the instant invention are the particular manner in which the diversity transmissions from the base stations and the equalizer at the mobile stations are adapted to each other. This adaption relates specifically to the modulation time of the signals being transmitted, the maximum radio signal propagation time between the base station transmitters in a particular area, and the reception time interval of the equalizer associated with the mobile station.

Response to First Office Action (2/20/90).

Similarly, Ericsson distinguished prior art and convinced the Examiner to draw yet another rejection by emphasizing the "modulation time interval":

The Examiner contends that the system of the reference eliminates phase differences and compensates for time delays, and that it would have been obvious for one of ordinary skill in the art to use the Yamaguchi system in the Glance system in order to eliminate the phase difference in Glance. However, neither Glance et al. or Yamaguchi et al. disclose or suggest any desirable relationship between the modulation time interval and diversity transmitter distance.

Response to First Office Action (2/20/90).

Finally, during the reissue prosecution, Ericsson again overcame a §103 rejection by emphasizing the modulation time interval:

[B]y the Examiner's own admission, Kai et al. fail to disclose Applicant's claimed modulation time intervals which are related to a time required for radio signals to propagate a distance corresponding to the greatest transmitting distance between two base stations associated with one cell in the system, or a reception time interval that is at least as long as the time required for radio signals to propagate a distance corresponding to the greatest transmitting distance between two base stations associated with a cell. Hence, Kai et al., considered individually, clearly fails to teach or suggest Applicant's claimed invention.

...

The Office Action maintains that Borth provides "teaching that the modulation time interval should be related to what applicant [sic] calls delay spread and the use of an equalizer in the receiver to reconstruct these delay spread signals." Applicants respectfully disagree with this contention. Applicants could not find any teaching or disclosure remotely suggesting or motivating Applicants' claimed modulation time interval related to a time associated with a radio signal propagating from one or more base stations on an associated cell, nor could Applicants locate any teaching, motivation, or suggesting of the recited reception time interval . . .

. . . Applicants submit that the patent to Borth is devoid of teaching regarding Applicants' claimed modulation time intervals and reception time intervals.

Response to Office Action (2/8/96).

4. As the preceding section discusses, Ericsson suggests that the '108 patent covers anything in which the modulation parameter Ericsson calls the "modulation time interval" is

taught to be less than the delay spread between two signals. Whether “base station transmitters” are used or not. Consequently, any prior art reference teaching this advantage would invalidate Ericsson’s alleged invention, at least as Ericsson now appears to interpret it. As Ericsson knows today, the prior art acknowledged the intersymbol interference that can be caused when the multipath medium delays a response from a transmitted symbol into intervals occupied by subsequent symbols, as described in the article entitled *Introduction to Spread-Spectrum Antimultipath Techniques and their Application to Urban Digital Radio*, PROCEEDINGS OF THE IEEE, Vol. 68, No. 3 (1980). That article discusses how equalization techniques that were developed for data transmission over telephone lines have been applied to the radio multipath problem. The article further discusses how this approach appears most suitable when the paths are not resolvable and when the symbol duration is much smaller than the multipath profile’s spread, yet Ericsson now apparently purports to have invented this long-known fact.

5. Ericsson’s attention is also directed to an article by Monson, entitled *Digital Transmission Performance on Fading Dispersive Diversity Channels*, IEEE TRANSACTIONS ON COMMUNICATIONS, Vol. COM-21, No. 1 (1973). That article explains how the average probability of error as a function of energy to noise ratio is solely dependent on the ratio of rms dispersion width to data symbol width. In addition, the article states that decision-feedback equalizer has small intersymbol interference penalty at a data rate exceeding the reciprocal of the rms channel dispersion.

6. Ericsson’s own publicly published papers, including “Multi-path Equalization for Digital Cellular Radio Operating at 300 KBIT/S” published in the 36<sup>th</sup> IEEE Vehicular Technology Conference in 1986, discloses what Ericsson now claims to be the “invention” covered by the claim. As Ericsson is well aware, the Raith paper taught using an equalizer in

mobile receivers to reduce intersymbol interference—which is even more than Ericsson now argues is required by the claim.

7. Depending on the extent that a Court holds that Ericsson's alleged "invention" is the relationship between the distance between base station transmitters and modulation parameters, U.S. Patent No. 4,057,758, issued to Takeshi Hattori and Fumiyuki Adachi of Japan, may be an anticipating reference. The '758 patent, which issued over a decade before Ericsson's alleged "invention," discusses a diversity system in a mobile radio communications system provided with a multipath medium. The '758 patent discusses the effect of various differences in transmitter distance, and discusses how the coefficient of correlation between outputs of two antenna systems varies in accordance with a distance between two antennas, a fact that was well known long before Ericsson filed its application. The '758 patent further discusses that, where there is a very short distance between two antennas in comparison with the wavelength of the employed carrier wave, the outputs of the two antenna systems include fading with a high coefficient of correlation. In contrast, if the distance between two antennas exceeds one-half of the wave length of the employed carrier wave, outputs of the two antenna systems are effected with independent fading such that they have substantially no correlation.

8. Similarly, United States Patent No. 4,715,048, issued to Tatsuro Masamura of Tokyo, Japan, discusses that space diversity simply requires two or more signal receiving antennas spaced sufficiently apart so that their fading patterns are independent.

9. Another reference, U.S. Patent No. 4,633,519, issued to Akio Gotoh and Tuguo Ishikawa of Tokyo, Japan, discusses a diversity reception system in a portable radio apparatus, which would anticipate the "invention" that Ericsson apparently now claims. Gotoh and Ishikawa explained the well-known fact that diversity is frequently used to achieve good

communication in the presence of Rayleigh fading. The patent discusses the space diversity technique that Ericsson may now claim to have “invented,” and explains how two or more identical types of antennas spaced more than one quarter wavelength from each other receive signals which are then combined or selected to diminish the effects of the fading phenomenon.

10. The PTO correctly cited U.S. Patent No. 4,383,332, issued to Glance, as another invalidating reference. As the PTO recognized, the ‘332 patent taught using space diversity transmissions and keeping the transmissions from the base station short, as Ericsson now apparently claims. In fact, Ericsson narrowly avoided invalidity by arguing to the PTO that Glance “does not disclose the utilization of an equalizer in a mobile station.” Response to Office Action (2/20/90). Ericsson has yet to explain whether it contends that (1) QPE’s Accused Products use equalizers, or (2) the ‘108 claims do not require the use of equalizers. If Ericsson actually argues the latter, it now contradicts what it said to the PTO—and Ericsson’s claim is therefore invalid in light of Glance.

11. Ericsson’s attention has been directed to numerous other references supporting invalidity defenses to the unknown, but apparently broad, claim construction Ericsson may espouse: U.S. Patent Nos. 4,852,090, 4,490,830, U.S. Patent Nos. 4,097,804, 4,255,814, 4,516,267, 4,675,863, 4,696,051, 4,696,052, 4,718,109, 4,759,051, as well as EPO Application Nos. 40731, 72479, 72984, 274857, FRG Application No. 3022425, and Articles by Raith, Heynisch, Stjernall, and Heft cited in QPE’s supplemental responses. QPE has not yet performed a detailed analysis of each prior art reference, and is unable to determine which prior art references it will use until Ericsson identifies how it construes the claim. Indeed, Ericsson has forced QPE to conduct prior art searches based on QPE’s “best guess” of Ericsson’s claim

construction and infringement positions, and QPE will undoubtedly find it necessary to search for and analyze additional prior art once Ericsson provides its claim construction.

As of the date of these responses, QPE and Qualcomm (in a parallel, first-filed action in Marshall, Texas) have asked Ericsson to explain its claim interpretation so that QPE and Qualcomm may understand Ericsson's allegations, focus on the areas of disagreement, and refine and narrow the noninfringement and invalidity disputes. Unfortunately, Ericsson has refused to explain what its duplicative lawsuits are about, in spite Court orders compelling it do so in the Marshall litigation.

To date, QPE has been able to verify that, contrary to Ericsson's claim that it somehow "invented" the concepts of multipath and diversity, the field was crowded and well-developed long before Ericsson attempted to claim the work of others. As Ericsson is aware, the prior art discloses, either expressly or inherently, multipath signal reception and equalization in cellular systems, and Ericsson's lawyers have to date been unable to concoct a claim construction that would somehow include QPE's Accused Products yet not reclaim the prior art.

QPE will supplement its analysis and will then provide a more detailed explanation of how Ericsson's interpretation would render the asserted claim invalid in light of this prior art once Ericsson provides a claim interpretation. In addition, once Ericsson commits to a claim interpretation, QPE may be able to identify additional prior art that invalidates the claim, at least as Ericsson construes it.

12. Nothing in the specification or drawings supports Ericsson's apparent interpretation that the claims of the '108 patent cover spread spectrum technology, much less code-division multiple access ("CDMA") technology. QPE has scrutinized the specification and drawings and is unable to find any disclosure whatsoever supporting Ericsson's apparent

interpretation or mentioning CDMA systems and methods. Thus, to the extent that Ericsson is successful in convincing the Court that the claims should be interpreted as covering CDMA systems, the written description of the '108 patent appears to be inadequate under section 112 since there is no written description of a method for practicing CDMA or spread spectrum technology. Furthermore, Ericsson's undisclosed, but apparently broad interpretation would render the claims invalid under section 112 for failure to claim what the applicant regards as his invention, as the scope that Ericsson apparently now espouses is impossibly broad. QPE will be able to further supplement this portion of the interrogatory once Ericsson provides discovery. Unfortunately, Ericsson has refused to allow QPE to take depositions of its inventors, and has unilaterally refused to participate in any further disclosure of any information that Ericsson believes to be "Confidential" in either this case or the Marshall case.

As the PTO recently found, the specification is also grossly insufficient to support Ericsson's new argument that the '108 patent somehow covers the process of "handoff" in a cellular system. Ericsson should refer to the Examiner's Office Action Summary in the Reissue Proceedings currently underway regarding the '108 patent, dated March 3, 1998, in which the Examiner rejected all claims that, unlike claim 1, "call for handover of a mobile station between base stations that cannot be found in the specification."

Further defects in the specification—if Ericsson's claim interpretation is adopted—include the patent's failure disclose an invention applicable to any type of mobile radio that does not have adaptive equalizers or their equivalent. See Col. 2:56-59 ("The mobile stations have adaptive equalizers for reconstructing the digital modulation in the transmitted signals from the signals received during a reception time interval.") (emphasis supplied); Col 6:24; Col. 7:36;

Col. 9:11, 17, 21, 26, 28, 37. Nothing in the specification supports any method or system with mobile radios having any “receiver” other than adaptive equalizers and their equivalents.

Once Ericsson commits to a claim interpretation, QPE will supplement its analysis and will then provide a more detailed explanation of how Ericsson’s interpretation would render the asserted claim invalid in light of this prior art. In addition, once Ericsson commits to a claim interpretation, QPE may be able to identify additional prior art that invalidates the claim, at least as Ericsson construes it. QPE may be able to identify additional defects in the specification once Ericsson provides its claim construction.